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1. (Currently Amended) A computer-readable medium having instructions for performing a method of multicast routing with a multicast capable router in a network including a plurality of routers, wherein only a subset of the routers are capable of multicast, comprising the steps of:  
receiving, at the multicast capable router, link state advertisements from routers in a the network;  
examining, at the multicast capable router, each link state advertisement to determine whether the link state advertisement includes a multicast capable bit indicating whether an associated router supports multicast;  
employing the received link state advertisements for constructing a multicast routing table and a unicast routing table, the multicast routing table corresponding to a short path tree through only multicast capable routers, wherein the multicast routing table includes a plurality of routing entries, and wherein routing entries are placed in the multicast routing table only for link state advertisements having the multicast capable bit set indicating that the associated router is a multicast router; and  
performing reverse path forwarding using the multicast routing table in support of routing multicast packets,  
whereby the multicast capable router is able to recognize and forward a multicast packet that is received via a path that is not indicated as the shortest path in the unicast routing table.
2. (Cancelled) The method of claim 1, including the further step of performing reverse path forwarding using the multicast routing table in support of routing multicast packets.
3. (Original) The method of claim 1 wherein the link state advertisements comprise OSPF (Open Short Path First) link state advertisements.
4. (Original) The method of claim 1 wherein the link state advertisements comprise MOSPF (Multicast Open Short Path First) link state advertisements.
5. (Cancelled)

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6. (Original) The method of claim 1 wherein constructing the multicast routing table comprises using Dijkstra's short path algorithm.
7. (Original) The method of claim 1 wherein the multicast routing table correlates addresses of destination multicast capable routers with addresses of multicast capable routers on a short path tree of multicast capable routers.
8. (Cancelled)
9. (Original) The method of claim 1 wherein using the multicast routing table comprises configuring PIM (Protocol Independent Multicasting) to use the multicast routing table.
10. (Original) The method of claim 9 wherein configuring comprises providing a routine for a PIM RPF\_Check function.
11. (Previously Amended) The method of claim 1 wherein PIM uses the multicast routing table to perform reverse path forwarding in sparse mode.
12. (Previously Amended) The method of claim 1, wherein PIM uses the multicast routing table to perform reverse path forwarding in dense mode.
13. (Currently Amended) A computer-readable medium having instructions for performing a method of multicast routing, comprising:
  - receiving MOSPF (Multicast Open Short Path First) link state advertisements from routers in a network;
  - constructing a multicast routing table and a unicast routing table from the received link state packets, the multicast routing table correlating addresses of destination multicast capable routers with addresses of multicast capable routers on a short path tree of multicast capable routers, wherein the multicast routing table includes a plurality of routing entries, and wherein

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routing entries are placed in the multicast routing table only for link state advertisements having a multicast capable bit set indicating that the associated router is a multicast router; and  
performing reverse path forwarding using the multicast routing table upon receipt of a multicast packet.

14. (Cancelled)

15. (Previously Amended) The method of claim 13 wherein multicast routing comprises routing in accordance with the Protocol Independent Multicasting (PIM) protocol.

16. (Previously Amended) The method of claim 13 wherein multicast routing comprises routing in accordance with the Protocol Independent Multicasting (PIM) protocol.

17. (Currently Amended) A computer program product, disposed on a computer readable medium, for multicast routing, the computer program including instructions for causing a computer to:

receive link state advertisements from routers in a network;

examine each link state advertisement to determine whether the link state advertisement includes a multicast capable bit indicating whether an associated router supports multicasting;  
and

construct a multicast routing table and a unicast routing table from the received link state packets, the multicast routing table corresponding to a short path tree through multicast routers, wherein the multicast routing table includes a plurality of routing entries, and wherein routing entries are placed in the multicast routing table by the computer program product only for link state advertisements having a multicast capable bit set in the link state advertisement indicating that the associated router is a multicast router; and

instructions for performing reverse path forwarding using the multicast routing table.

18. (Cancelled) The computer program of claim 17 further comprising instructions for performing reverse path forwarding using the multicast routing table.

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19. (Original) The computer program of claim 17 wherein the link state advertisements comprise MOFPP (Multicast Open Short Path First) link state advertisements.

20. (Original) The computer program of claim 17 wherein the multicast routing table correlates addresses of destination multicast capable routers with addresses of multicast capable routers on a short path tree of multicast capable routers.

21. (Cancelled)

22. (Original) The computer program of claim 17 wherein multicast routing comprises multicast routing using the Protocol Independent Multicasting (PIM) protocol.